

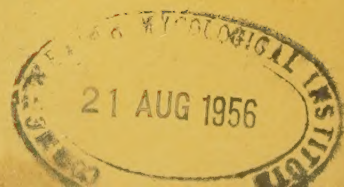


FEDERATION OF NIGERIA

ANNUAL REPORT
ON THE
DEPARTMENT OF AGRICULTURE
(Central)
FOR THE YEAR 1953-54
PART I

NINEPENCE NETT

LAGOS: FEDERAL GOVERNMENT PRINTER



CONTENTS

PART I

Page

Foreword by Honourable Minister of Research and Information.

Report by Research Adviser	1
Staff List	6
Financial Account	8

FOREWORD

BY THE HONOURABLE KOLAWOLE BALOGUN,
Minister of Research and Information

The year 1953-54 was a year of change and reorganisation brought about by the decisions made at the Constitutional Conferences in London and Lagos. The Conference decided that responsibility for all agricultural matters, other than research, should be vested in Regional Governments. Agricultural research is a subject in the concurrent Legislative List and any Region may engage in whatever research it wishes to undertake.

At the Natural Resources Conference held in Lagos in February 1955, it was agreed that the field of research to be undertaken by the Federal Government should be worked out in the Agricultural Technical Committee and approved, subject to funds being made available, by the newly established Council of Natural Resources of Nigeria.

Shortage of staff hampered the Federal Research organisation's activities during the year, but nevertheless notable results were achieved in work on the improvement of food and cash crops and in the control of diseases and pests.

A sub-station of the West African Cocoa Research Institute was opened at Ibadan and three specialists from the Institute's staff were posted to Nigeria to study specific local problems.

The maize rust and rice research schemes continued work on their primary objectives of improving the quality of maize and rice cultivated in Nigeria and much new knowledge and heartening results were obtained.

I should like to express my deep appreciation of the hard work done by all the officers engaged in the vital task of improving and increasing our food and export crops and to assure them that although little publicity is given to their work it is of the first importance to the welfare and prosperity of the people of Nigeria.

Annual Report on the Agricultural Department (Central) for the Year 1953-54

REPORT OF THE RESEARCH ADVISER

This report takes the same form as that of 1952-53. A general section which makes reference to policy, administration and matters of major interest is followed by a part published separately containing detailed reports of the work of the Central Research Organisation and of the specialist officers of the regional establishments.

PART I—GENERAL

INTRODUCTION*

The proposals for the new Constitution which arose from the London Conference,* July-August 1953 and the Lagos Conference† January-February 1954 allocated responsibility on all agricultural matters, other than research, to the Regional Governments. Agricultural research is a subject on the concurrent Legislative List and details of the Federal Organisation required to meet the needs of the regions and the Southern Cameroons still remain to be worked out. The recommendations to be made by the International Bank Mission will also require study in this connexion.

In one region, the north, a ten-year plan for the expansion of regional agricultural research activities has already been initiated. The plan, which is receiving financial assistance from the Cotton and Groundnut Marketing Boards, allows an increase in senior staff from 7 to 43 specialist officers, with a corresponding increase in junior staff, buildings and equipment, and involves the expenditure of £3½ million during the period 1954-55 to 1963-64.

ADMINISTRATION

The Central Research Organisation was strengthened by the appointment of a Principal Research Officer and an Agricultural Superintendent. One senior specialist left the service on retirement, a loss which was partly offset by the arrival of a new recruit.

The number of projects which could be undertaken by Central Research Staff was severely restricted by the limited officers available. Out of a total approved Central specialist establishment of 14, three were on attachment or secondment (2 chemists and 1 Entomologist) in the Northern and Western Regions, and in the French Sudan, whilst 5 were new appointments due to arrive between 1954-56, leaving a total of 6, of whom 2 were tied down by administrative duties.

A similar picture presented itself for staff of the research schemes for maize and rice. Out of a total approved posts of 5 specialist staff only 2 were filled. However one plant breeder (rice) is due to arrive in 1955 and another plant breeder for maize is being sought.

* Report by the Conference on the Nigerian Constitution held in London July and August 1953. Cmd. 8934.

† Report by the Resumed Conference on the Nigerian Constitution held in Lagos in January and February, 1954.

There was an improvement in the recruitment of specialist staff in the Northern Region Research Station. The senior staff position at March 1954 was as follows :—

	<i>Present Staff</i>	<i>Approved Establishment 1953-54</i>
<i>Central Research Organisation</i>		
Research Adviser.. .. .	1	1
Principal Research Officer	1	1
Senior Specialists.. .. .	3	3
Specialists.. .. .	4	9
Temporary Technical Publications Officer	—	1
Agricultural Superintendent	1	1
Administrative Assistant.. .. .	1	1
Rice Research Scheme Specialists	—	2
West African Maize Rust Research Scheme Specialists	2	3
<i>Northern Region</i>		
Principal Agricultural Officer	1	1
Specialists.. .. .	5	6
Empire Cotton Growing Specialists	4	6
<i>Western Region</i>		
Cocoa Soil Survey	4	5
Specialists.. .. .	2	4
<i>Eastern Region</i>		
Specialists.. .. .	1	3
Total	<u>30</u>	<u>47</u>

It will be seen that the number of vacancies for the coming year amounts to 17. Of these 9 are in the Central Research Organisation. Most of these have been recruited and will be coming forward within the next two years as their post-graduate training is completed.

SOIL SURVEY AND INVESTIGATIONS ON SOIL FERTILITY

Detailed soil surveys in the North were made of three provincial experimental farms. Two of these, Lowlands (Plateau Province) and Osara (Kabba Province) were new acquisitions, and the third at Zonkwa (Zaria Province) was the old farm centre now enlarged to 500 acres. The field work for a semi-detailed survey of the Northern Research Station at Samaru was also completed.

Good progress was made with the soil survey in the Western Region, in Ibadan and Oyo Provinces. A sub-station was opened at Akure in Ondo Province. Main attention was given to a reconnaissance survey of an area of 1,800 square miles around Ondo and Akure, of which 1,000 square miles have been completed. This area differs from those previously mapped in having large areas of granite (or granodiorite) and considerable amounts of diorite. A few new soil series have been named and studied, but in the majority of cases, the soils encountered have fitted into series previously recorded.

A study is being made of the changes taking place in the soil at Benin during a period of eleven years, following clearing of the forest and the establishment of oil palms under various cultural treatments. The Benin sands are deep and porous, but lack mineral reserves in the form of rotting rock. The problem of maintaining and enhancing soil fertility under these conditions, is found to be closely dependant on soil organic matter. The factors affecting the changes in soil organic matter are being further studied.

A two year investigation on sulphur deficiency in the Northern Region has been completed. Experiments carried out on Government farms and Native Administration Farm Centres have indicated that a large area in the Region is marginal as regards sulphur. Experimental results show that when super phosphate is used, sufficient sulphur is present in the fertilizer to satisfy plant requirements with respect to groundnuts and guinea corn. Progress was also made in determining the fertilizer requirements of maize and yams.

IMPROVEMENT OF FOOD AND CASH CROPS

Cassava.—The programme of improvement of the cassava crop encountered difficulties through attack by mosaic disease. A plant breeder and plant pathologist are due to arrive next year to undertake joint research into this problem.

Cocoa.—The Botanists hybrid cocoa Nigerian x Trinidad continued to give high yields compared with other cocoa.

Cotton.—Reselected stocks of the cotton strain Samaru 26C, now being issued for commercial growth, are proving superior to earlier stocks. Further reselection work with this strain and related types promises to give continued substantial improvement in yield and also in lint quality.

Cowpeas.—Further trials of cowpea varieties have confirmed the superiority of Mauritius and New Era to other varieties.

Groundnuts.—New selections in the "L" series were included in the main variety trials at Kano and Samaru for the first time. Although differences in yield were not statistically significant, the lines all yielded better than those at present recommended for the two areas.

Previous selections at Samaru have proved inferior to the variety Daura local spreading under Daura conditions. A hybridization programme is now underway in which the local variety is being crossed with some of the high yielding Samaru varieties with a view to providing progeny for further selection.

Guinea-corn.—A series of variety trials has been carried out at several stations in the Northern Region to assess the performance of varieties of guinea-corn grown outside their own area. In some cases a variety from an outside area has out-yielded the local variety.

Time of planting trials of American varieties of guinea-corn have shown that in the Northern Guinea and Sudan Zones, these varieties only yield well when planted early. In the third year of the trial at Samaru, the varieties Ladore and Hegari continued to prove outstanding.

Pasture Research.—A large number of forage plants, both indigenous and exotic, have been established at the Northern Region Agricultural Research Station at Samaru where their value is being assessed. Experimental work is primarily concerned with the problems of the grass ley in mixed farming and allied problems of fodder conservation and animal feeding. Some investigations in range land utilisation are being undertaken. Various aspects of seed production are under examination and great assistance has been given by the National Institute of Agricultural Engineering in connexion with threshing operations.

Pepper.—Encouraging reports were received from the Colonial Products Laboratory on four samples of Indian Black Pepper, one from Meanja in the Southern Cameroons and three from Ibadan in the Western Region. The sample from the Southern Cameroons had the best appearance, but the variety Kallivalli grown at Ibadan also received favourable comment.

Rice.—The arrival of a Plant Breeder enabled a start to be made with the programme of work at the Central Rice Breeding Station at Badeggi, in Niger Province. About 300 varieties have been established in the collection plots.

Rubber.—In view of the considerable interest in the development of rubber plantations in Nigeria and the Southern Cameroons, arrangements were made to provide material of high-yielding clones. Bud-wood of proven clones and of new selections were introduced from Malaya and established in a quarantine nursery. Material was supplied to commercial plantations for further propagation.

CONTROL OF PLANT DISEASES AND PESTS

Cocoa.—A fungicide spraying trial aimed at the control of black-pod disease of cocoa was carried out on an area of 200 acres in the Western Region in order to obtain information on costs as well as to serve as a training ground for instructors. Farmers now receive courses of instruction and subsequent advice through the extension service of the Regional Department of Agriculture. Black-pod disease investigations continued and an improved technique was developed for observations on dispersal of the sporangia of the pathogen.

Dusting experiments carried out against capsid bugs gave indications that yields may be increased by 30 per cent after the third year of treatment.

Cotton.—The possibility of effectively controlling 'black-arm' disease caused by *Xanthomonas malvacearum* by seed dressing is being investigated on a field scale in the Northern Region following encouraging preliminary trials.

The conditions under which it may be possible to control insect pests economically by application of insecticides are being further studied. In the meantime, for peasant crops in Nigeria, the enforcement of an effective close season remains the only practical means of keeping insect damage within bounds.

Successful control measures were devised by the cotton entomologist against mirids causing leaf tattering.

Guinea-corn.—Following the discovery of the sorghum midge, *Contarinia sorghicola*, in Nigeria in March 1953, Agricultural Officers in all three Regions were asked to forward seed heads of cereals and grasses to Ibadan so that the distribution of the pest could be determined. Seed heads were received from 37 different localities, out of which Cecidomyid midges were reared in 18 cases. Further research is planned when an additional Entomologist becomes available.

Maize.—Progress continued in the selection of superior types of maize resistant to rust, and other diseases and pests.

INTER-TERRITORIAL RESEARCH INSTITUTES

The Institutes for Cocoa and Oil Palm Research continued to make good progress in spite of staff shortages. The results of their researches are recorded in their respective annual and quarterly reports.

Meetings were regularly convened and attended throughout the year and Nigeria's research needs were fully represented at Technical Committees.

A start was made with the establishment of a West African Cocoa Research Institute sub-station at Ibadan. Three specialists from the Institute's staff were posted to Nigeria to study specific local problems related to cocoa swollen shoot virus strains and their mealy-bug vectors. Four other members of the Institute's staff visited Nigeria during the year and close liaison was maintained with local research workers.

COLONIAL DEVELOPMENT AND WELFARE RESEARCH SCHEMES

WEST AFRICAN MAIZE RUST RESEARCH SCHEME

The object of the scheme is the improvement of the quality of maize grown in West Africa, as well as to develop resistance to maize rust disease. Sources of resistance have been located in varieties of maize introduced from Central America and Mexico and two of these have been shown to out-yield local varieties. The factors affecting the incidence and spread of the disease are also being studied.

As the work proceeds other diseases such as *Helminthosporium* leaf blight and pests of the stem borer type are being encountered and control measures investigated.

The research programme is being co-ordinated with experimental work in other territories in both East and West Africa.

NIGERIAN RICE RESEARCH SCHEME

The immediate objective of this scheme is to improve the quality of rice cultivated in Nigeria by the selection and breeding of local strains. The site of the rice breeding station is near Badeggi, and work on its construction commenced in October 1953 by the Northern Region Department of Public Works. A plant breeder was posted to Bida in November 1953, to establish the experimental area, and a good start was made in assembling a collection of 300 rice varieties. A soil survey of the irrigation schemes at Badeggi and Edohzigi was also carried out.

Close liaison is being maintained with the Rice Research Station at Rokupr in Sierra Leone.

REGIONAL AGRICULTURAL SERVICES

The Annual Reports of the Regional Departments of Agriculture are compiled and published separately by the Regional Directors of Agriculture. They review policy and major developments, crop and livestock industries as well as the activities of the Regional Departments of Agriculture.

VISITING MISSIONS

Dr Hugh C. Trumble, Adviser on Agriculture and Dr Ilhami Masar, Adviser on Agricultural Economics were the agricultural experts of a mission, organized by the International Bank for Reconstruction and Development at the request of the Governments of Nigeria and the United Kingdom, with terms of reference to assess the resources available for the economic development of Nigeria. They arrived late in September and remained until mid December 1953. A report on the Missions' findings had not been received at the end of the period under review.

INTERCHANGE OF VISITS BY SPECIALISTS TO NEIGHBOURING TERRITORIES

Dr W. R. Stanton, Senior Scientific Officer, attended the Ninth International Congress of Genetics held in Italy, 24th to 31st August, 1953.

Mr C. A. Thorold, Principal Research Officer, attended the Cocoa, Chocolate and Confectionery Alliance Conference held in London, 15th to 17th September, 1953.

Dr J. M. Waterston, Research Adviser, and Mr J. L. Gregory, Entomologist, represented Nigeria at the First Anglo-French Agricultural Research Conference held in the Gold Coast at the West African Cocoa Research Institute, Tafo, on 12th to 16th December, 1953.

Mr J. T. Davey, Entomologist, remained seconded to C.I.P.P.A.S. at Bamako in the French Sudan, as leader of a mission studying the ecology of the African Migratory Locust.

Visiting scientists from outside territories, included, Mr D. Rhind, Secretary for Agriculture and Forestry Research, West African Inter-Territorial Secretariat, Gold Coast; Professor L. Dudley Stamp, University of London, Dr C. B. Williams, Head of Entomology Department, Rothamsted Research Station, Dr Scott Russell, School of Agriculture, Oxford University, Dr W. O. Jones, Food Research Institute, Stanford University, California, U.S.A., Dr G. M. Wickens, Plant Pathologist, Empire Cotton Growing Corporation, I. J. Ball, Plant Protection Limited, W. Jackson, West African Rice Research Station, Sierra Leone, W. E. Webb, West African Timber Pests Research Unit, Gold Coast, R. V. Wadsworth and Dr Howat of Messrs Cadbury-Fry, London, and Messrs Dale, Lister, Tinsley and Wharton of the West African Cocoa Research Institute, Tafo, Gold Coast.

ACKNOWLEDGEMENTS

Grateful acknowledgement is made for the continued assistance received from the Commonwealth Agricultural Bureaux, particularly the Mycological Institute and the Institute of Entomology, and to the Directors of the Royal Botanic Gardens, Kew, and the Colonial Products Laboratory for aid with technical problems.

J. M. WATERSTON,
Research Adviser

STAFF LIST OF RESEARCH WORKERS AS AT 31ST MARCH, 1954 (INCLUDING OFFICERS OF THE REGIONAL RESEARCH STATIONS, THE MAIZE RUST RESEARCH SCHEME, THE RICE RESEARCH SCHEME AND THE EMPIRE COTTON GROWING CORPORATION BUT NOT W.A.I.F.O.R.)

Research Adviser :

Dr J. M. Waterston, B.SC., PH.D. (EDIN.) A.I.C.T.A. (On leave from 20-8-52 to 14-1-53) Administration (C)

Principal Research Officer :

C. A. Thorold, M.A. (OXON) A.I.C.T.A. (Resumed duty 7-4-54) Plant Pathologist (C)

Principal Agricultural Officer :

J. H. Gisborne, B.A. (OXON), A.I.C.T.A. (Resumed duty 5-3-54) Administration (N)

Senior Specialist Officers :

W. E. Freeman, B.SC. (LONDON), A.R.C.S., A.I.C.T.A. .. Senior Botanist (C)

T. A. Russell, B.SC. (LOND.), A.R.C.S., A.I.C.T.A., DIP. AGRIC. (CANTAB.) (Retired with effect from 9-1-54) .. Senior Botanist (C)

Dr H. Vine, B.SC., PH.D. (LOND.), A.R.I.C. (On leave from 13-3-53 to 13-8-53) Senior Chemist (C)

Specialist Officers :

H. Irving, B.S.A., B.SC., AGRIC. (TORONTO) (Resumed duty 10-8-54) Chemist (C)

J. T. Davey, B.SC. (BRISTOL), A.I.C.T.A. (On secondment to French Sudan) Entomologist (C)

A. R. Maurer, B.S.A. (U.B.C.), M.SC. (MCGILL) Botanist (N)

J. L. Gregory, B.SC. (SHEFFIELD), DIP. AGRIC. (CANTAB.), DIP. TROP. AGRIC. (TRINIDAD) Entomologist (C)

A. J. Vernon, B.SC., AGRIC. (READING) Botanist (W)

E. J. Butler, B.A. (T.C.D.) Agronomist (N)

J. R. G. Sutherland, B.SC., AGRIC. (MCGILL) (On leave from 29-12-53) Senior Entomologist (C)

G. M. Higgins, B.SC. AGRIC. (WALES), DIP. AGRIC. (CANTAB.) Chemist (N)

L. A. Heapy, B.SC. (SASKATCHEWAN) Chemist (E)

A. B. Rains, B.SC. (WALES), DIP. AGRIC. (CANTAB.) .. Pasture Research Officer (N)

J. M. L. Kowal, M.SC. (WALES) Agricultural Development Officer (W)

Miss E. Harrison, B.SC. (ST. ANDREWS), DIP. AGRIC. (CANTAB.), DIP. AGRIC. (TRINIDAD) (Assumed duty 12-8-53) Botanist (N)

J. E. Y. Hardcastle, B.SC. (DUNELM), DIP. AGRIC. (CANTAB.), DIP. TROP. AGRIC. (TRINIDAD) (Assumed duty 12-8-53) Botanist (C)

COCOA SOIL SURVEY

Vacant	Senior Soil Scientist (W)
Dr H. Vine, B.SC., PH.D. (LOND.), A.R.I.C., A.I.C.T.A. (Seconded from Central Research Organisation) ..	Senior Chemist and Officer-in-Charge (C)
V. J. Weston, B.SC. (WALES), A.R.I.C.	Soil Scientist (W)
R. F. Montgomery, B.SC. (ST. ANDREWS) (On leave 19-6-53 to 10-11-53)	Soil Scientist (W)
A. J. Smyth, B.A. (CANTAB.) (Assumed duty 20-11-52)	Soil Scientist (W)
R. P. Moss, B.SC. (LOND.) (Assumed duty 28-1-53) ..	Soil Scientist (W)

EMPIRE COTTON GROWING CORPORATION

H. E. King, B.SC. AGRIC., DIP. AGRIC. (WYE)	Cotton Breeder (N)
D. A. Lawes, B.SC. (Assumed duty 14-9-53)	Assistant Cotton Breeder (N)
M. A. Choyce, B.SC. (NOTTINGHAM) D.I.C. (LOND.) ..	Entomologist (N)

MAIZE RUST RESEARCH SCHEME R.471

Vacant	Senior Principal Scientific Officer (C.D.W.)
Dr W. R. Stanton, B.SC. (READING), PH.D. (LOND.) ..	Senior Scientific Officer (C.D.W.)
R. H. Cammack, B.SC. (ST. ANDREWS)	Scientific Officer (C.D.W.)

RICE RESEARCH SCHEME R.224

Vacant	Senior Agricultural Officer (C)
Vacant	Senior Botanist (C)

SUPERINTENDENTS, ETC.

D. J. Iddon	Station Manager (N)
A. O. Bamtefa (Assumed duty 28-9-52)	Agricultural Superintendent (C)
C. O. Phillips (Assumed duty 29-11-52)	Agricultural Superintendent (W)
C. W. Morgan, B.SC. (WALES) (Assumed duty 2-12-53)	Production Officer (N)
W. R. Wilson (Assumed duty 30-9-53)	Laboratory Superintendent (N)
8 vacancies	Specialists (C)
1 vacancy	Specialist (C.D.W.)
3 vacancies	Specialists (N)
3 vacancies	Specialists (W)
2 vacancies	Specialists (E)

17 vacancies

NOTES :—

- (C) Nigerian Department of Agriculture.
- (W) Western Region Department of Agriculture.
- (N) Northern Region Department of Agriculture.
- (E) Eastern Region Department of Agriculture.
- (C.D.W.) West African Colonial Development and Welfare Research Scheme.

SUMMARY OF CENTRAL EXPENDITURE AND REVENUE FOR THE PERIOD
1ST APRIL, 1953 TO 31ST MARCH, 1954

ESTIMATED EXPENDITURE

	<i>Personal Emoluments</i>	<i>Other Charges</i>	<i>Special Expendi- ture</i>	<i>Total</i>
	£	£	£	£
Main Agriculture (Nigeria)	44,600	23,080	5,550	73,230
Agricultural Development (Nigeria) ..	17,290	12,300	20,660	50,250
Total	£ 61,890	35,380	26,210	123,480

1953-54

ACTUAL EXPENDITURE

	<i>Personal Emoluments</i>	<i>Other Charges</i>	<i>Special Expendi- ture</i>	<i>Total</i>
	£	£	£	£
Main Agriculture (Nigeria)	32,124	18,721	6,505	57,350
Agricultural Development (Nigeria) ..	8,022	6,943	15,725	30,690
Total	£ 40,146	25,664	22,230	88,040

REVENUE

	<i>Estimated Revenue</i>	<i>Actual Revenue</i>
	£	£
Sales of Agricultural Produce	520	645
Total	£ 520	645

16-1-56
21-6-56
26-6-56
9-7-56